



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,055	03/01/2002	Kiam Choo	VERI-002	3261

7590 12/08/2006
William L. Botjer
PO Box 478
Center Moriches, NY 11934

EXAMINER

NGUYEN, HAI V

ART UNIT PAPER NUMBER

2142

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,055

Applicant(s)

CHOO, KIAM

Examiner

Hai V. Nguyen

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,7-10,12,13,16,20,21,24,28-34,36,37,40 and 44-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 7-10, 12, 13, 16, 20, 21, 24, 28-34, 36, 37, 40 and 44-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to the communication received on 29 September 2006.
2. Claims 6, 17-19, 25-26, 41-43 were cancelled.
3. Claims 3, 4, 11, 14, 5, 22, 23, 27, 35, 38, 39, 48 are cancelled.
4. Claims 1, 2, 5, 7-10, 12, 13, 16, 20, 21, 24, 28-34, 36, 37, 40 and 44-47 are presented for examination.

Response to Arguments

5. Applicant's arguments and amendments filed on 29 September 2006 have been fully considered but they are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the following new ground(s) of rejection as explained here below, necessitated by Applicant's substantial amendment to the claims which significantly affected the scope thereof.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 12, 20, 36 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility.

The limitation of "The host program receiving the request for the resource from at

Art Unit: 2142

least one of the application running on the computer" is not a specific and substantial asserted utility or a well established utility because the specification does not enable *"what the applications are; how the applications request for resource; how the host program receives the request"*.

The specification describes that, *"a host is a program that provides a suitable living environment for the symbiont to run, i.e., it provides memory, storage, script interpretation, and other services necessary for the symbiont to function"* (Applicant's paragraph [0040]).

It is clearly to the ordinary skill in the computer networking art that the host is merely the combination of hardware and software loaded on the computer. However, *"The suitable living environment"* is not a specific and substantial asserted utility or a well established utility because the ordinary skill in the networking art can not imagine nor see how the host program provides such a suitable living environment in computer networking field art.

"The load on the symbiont" is not a specific and substantial asserted utility or a well established utility because the symbiont is a self-replicating program, e.g., a software program (Applicant's definition, paragraph [0039]), then the software program does not have the load itself on it unless it is loaded on a computer to execute the program for running for an application and it becomes the load on the computer and on the computer network. Then, the resources, such as data computing, applications, storage, computational power, bandwidth, used in the computer and computer network have been utilized. Accordingly, the ordinary skill in the networking art cannot

Art Unit: 2142

comprehend how the invention as claimed produces the useful, tangible, concrete results.

Claims 1, 12, 20, 36 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 5, 7-10, 12, 13, 16, 20, 21, 24, 28-34, 36, 37, 40 and 44-47 are rejected under 35 U.S.C. 102(e) as being anticipated by **Abrams et al.** U.S. patent application publication # **2002/0166117 A1**.

10. As to claim 1, Abrams teaches substantially the invention as claimed, including a method for handling a request for a resource (*request for an instance of application*), the request being made by applications (*application stack*) running on a computer (*Fig. 13, a server 354*), the computer being part of a network of computers, each computer on the network including a host program (*Fig. 13, an edge point 350*), the host program including one or more symbionts, the one or more symbionts being connected to each

Art Unit: 2142

other for communication (*Fig. 13, items 220a-f*), the one or more symbionts encapsulating resources, the method comprising the steps of:

- a. the host program receiving the request for the resource from at least one of the applications running on the computer (*Fig. 13, page 8, paragraphs [0073]-[0077]*);
- b. the host program contacting a symbiont that encapsulates the resource (*Fig. 13, page 8, paragraphs [0073]-[0077]*); and
- c. the symbiont performing one of the steps of:

- i/ serving the request if load on the symbiont is less than a threshold, I_{\max} (*Figs. 13-15, page 8, paragraph [0073] – page 10, paragraph [0087]*);

- ii/ replicating the resource on the at least one of the applications running on the computer, if load on the symbiont is more than the threshold, I_{\max} , and load on all symbionts encapsulating the resource, is more than a threshold, t , (*Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*); and

- iii/ redirecting the request to the connected replicate of the symbiont, if load on the symbiont is more than the threshold, I_{\max} , and at least one of the symbionts encapsulating the resource has a load less than the threshold, t , (*Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*)).

11. As to claim 2, Abrams teaches, a. the host program exposing the one or more symbionts available in the network to the applications running in the computer (*Fig. 13, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraphs [0073]-[0077]*); and

b. the host exposing the one or more symbionts available on the host to the network

12. As to claim 5, Abrams teaches, wherein the replicates of the symbiont are connected together in a multiply connected ring (*Figs. 14-15, the ring 126; pages 2-3, paragraphs [0019]-[000024]; page 9, paragraphs [0080]-[0087]*).

13. As to claim 7, Abrams teaches, wherein the threshold, I_{\max} , of the symbiont, is lowered to increase the number of replicates according to a predetermined probabilistic measure (*Fig. 22*).

14. As to claim 8, Abrams teaches, wherein the threshold, t , of symbionts encapsulating the resource is less than the threshold, I_{\max} of the symbiont (*Fig. 22*).

15. As to claim 9, Abrams teaches, wherein the threshold, t , of symbionts encapsulating the resource, evolves with time according to some probabilistic measure (*Fig. 22*).

16. As to claim 10, Abrams teaches, wherein the request is redirected to the connected replicate encapsulating the resource with the least load among the connected replicates in the multiple connected ring (*Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*).

17. Claim 12 corresponds to the system claim of claim 1; therefore it is rejected under the same rationale as in claim 1.

Art Unit: 2142

18. Claims 13, 16 introduce identical limitations of claims 2, 5; therefore, it is rejected under the same rationale as in claims 2, 5.

19. As to claim 20, Abrams teaches a method for arranging replicates encapsulating a resource in a network of computers, each computer in the network comprising a host program, the host program comprising one or more symbionts, the one or more symbionts encapsulating resources, the method comprising the steps of:

a. connecting all the replicates encapsulating the resources in the form of multiply connected ring (*Figs. 14-15*);

b. replicating the resource on at least one of the applications running on the computer, if load on a symbiont is more than threshold, I_{max} , and load on all symbionts encapsulating the resource, is more than a threshold, t , wherein the symbiont encapsulates the resource (*the encapsulation of an appshot 220 allows the on-demand system 140 to replicate an application and provide plurality of instances of the same time application to be operated at substantially the same time utilizing a plurality of subsets of the on-demand computational resources. The application allows the on-demand system 140, among other things, to move the appshot 220 to another set of compute resources such as another server, computer or machine, to duplicate the appshot 220 to other servers, and to replace or upgrade an appshot 220; Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*);

Art Unit: 2142

c. connecting a replicate encapsulating the resource to the multiply connected ring (*Figs. 14-15*); and

d. deleting the one or more symbionts encapsulating the resource from the multiply connected ring if load of the symbiont is less than a predetermined threshold, I_{\min} (*the encapsulated appshot 220 allows the on-demand system 140 to put an application when operating as in instance of an application into a form which allows the system to remove the instance of the application from an idle server when the application instance associated with an appshot 220 is not being used; Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*)

20. Claims 21, 24 introduce identical limitations of claims 2, 5; therefore, they are rejected under the same rationale as in claims 2, 5.

21. Claims 28-30 have similar limitations of claims 7-9; therefore, they are rejected under the same rationale as in claims 7-9.

22. As to claim 31, Abrams teaches, marking one of the symbionts encapsulating the resource as immortal (*Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]*);

23. As to claim 32, Abrams teaches, wherein said step of deleting the one or more symbionts encapsulating the resource from the multiply connected ring, comprises all the symbionts checking their loads at regular time intervals (*Figs. 13-15, pages 2-3,*

Art Unit: 2142

paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]).

24. As to claim 33, Abrams teaches, wherein the regular time intervals are dependent on the variation of load on the symbiont (*Fig. 22*).

25. As to claim 34, Abrams teaches, wherein the predetermined threshold, I_{min} , depends on the number of the symbionts (*Fig. 22*).

26. As to claim 36, Abrams teaches a system for arranging replicates of a resource in a network of computers, each computer on the network comprising a host program, the host program comprising one or more symbionts, the one or more symbionts encapsulating resources, the system comprising the steps of:

a. means for connecting all the replicates of the resources in the form of multiply connected ring (*Figs. 14-15*);

b. means for replicating the resource on one of the host programs in the network of computers (*the encapsulation of an appshot 220 allows the on-demand system 140 to replicate an application and provide plurality of instances of the same time application to be operated at substantially the same time utilizing a plurality of subsets of the on-demand computational resources. The application allows the on-demand system 140, among other things, to move the appshot 220 to another set of compute resources such as another server, computer or machine, to duplicate the appshot 220 to other servers, and to replace or upgrade an appshot 220; Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10,*

Art Unit: 2142

paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]);

c. means for joining a replicate of the resource with the multiply connected ring (Figs. 14-15); and

d. means for deleting the one or more symbionts encapsulating the resource from the multiply connected ring if load of the symbiont is less than a predetermined threshold, I_{\min} (the encapsulated appshot 220 allows the on-demand system 140 to put an application when operating as an instance of an application into a form which allows the system to remove the instance of the application from an idle server when the application instance associated with an appshot 220 is not being used; Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])

27. Claims 37, 40 introduce identical limitations of claims 21, 24; therefore, they are rejected under the same rationale as in claims 21, 24.

28. Claims 44-47 have similar limitations of claims 31-34; therefore, they are rejected under the same rationale as in claims 31-34.

29. Further references of interest are cited on Form PTO-892, which is an attachment to this action.

Response to Arguments

30. Applicant's arguments filed on 29 September 2006 have been fully considered but they are not persuasive.

31. In the remark, Applicant argued in substance that:

Point (A), the prior art does not disclose that, "any connection between the object replicas" (Applicant's remark, pages 16, 23).

As to point (A), Abrams discloses that, *"In one embodiment, the on-demand application system 140 is capable of relocating or replicating an appshot 220 to other or alternate sets of computational resources such as other compute modules and/or other edgepoints 350 (see FIG. 14A) distributed throughout the worldwide on-demand system 140 providing at least a portion of the distributed on demand computational resources."* (Abram, paragraph [0068]; [0110]).

Point (B), the prior art does not disclose "a living environment" (Applicant's remark, page 17).

As to point (B), In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *a living environment*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Point (C), the prior art does not disclose "a multiply connected ring" in claims 5, 16, 24 and 40 (Applicant's remark, page 19).

Art Unit: 2142

As to point (C), Abrams discloses in figures 14, 15 that, the edge point all connected as ring".

Point (D), the prior art does not disclose "the use of two thresholds, I_{max} and t , and the relation between them" in claims 7-9, 28-30 (Applicant's remark, pages 20, 24).

As to point (D), Abrams disclose in Figure 22, the use of two thresholds, I_{max} (either the line representing the prior art total capacity or the line representing total capacity with inventive system method embodiment) and t , the load graph of application1 or the load graph of application2 and in figure 13B that, *"Referring to FIG. 13B, once a server 354a is running the application instance 356a, the application 356a is fully active and operating, so that additional users 124b can be routed to and gain access to the active application 356a. Because the application 356a is already active, additional users 124b get an immediate response with substantially no delay. However, as more users request access to the application 356a, the response time begins to suffer, and the effectiveness of this application begins to deteriorate because the application 356a becomes overloaded. As additional users 124c attempt to access the instance of the application 356a response time degrades. In one embodiment, a predetermined response time threshold or limit is set, or a predefined number of users is set which limits the number of users allowed to access one instance of an application. Thus, when a new user 124c attempts to access the application 356a, and this new user 124c exceeds the predefined threshold, the edgepoint 350 activates the appshot 220b to initiate a second instance of the application 356b. Thus, this demonstrates the*

Art Unit: 2142

ability of the present invention to provide capacity on the run or on-demand, and provide an optimal response time for the applications 356a-f (paragraph 0074)]”.

Point (E), the prior art does not disclose “the method for the replication of the resource on a requesting host” (Applicant’s remark, page 22).

As to point (E), In response to applicant’s argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., *the replication of the resource on a requesting host*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Moreover, Abrams discloses “*In one embodiment, the on-demand application system 140 is capable of relocating or replicating an appshot 220 to other or alternate sets of computational resources such as other compute modules and/or other edgepoints 350 (see FIG. 14A) distributed throughout the worldwide on-demand system 140 providing at least a portion of the distributed on demand computational resources.*” (Abram, paragraph [0068]; [0110]).

Point (F), the prior art does not disclose, “using the predetermined threshold nor check the load of the connected replicates” (Applicant’s remark, pages 25).

As to point (F), Abrams discloses in Figs. 13, 22, that “*Referring to FIG. 13B, once a server 354a is running the application instance 356a, the application 356a is fully active and operating, so that additional users 124b can be routed to and gain access to the active application 356a. Because the application 356a is already active, additional*

Art Unit: 2142

users 124b get an immediate response with substantially no delay. However, as more users request access to the application 356a, the response time begins to suffer, and the effectiveness of this application begins to deteriorate because the application 356a becomes overloaded. As additional users 124c attempt to access the instance of the application 356a response time degrades. In one embodiment, a predetermined response time threshold or limit is set, or a predefined number of users is set which limits the number of users allowed to access one instance of an application. Thus, when a new user 124c attempts to access the application 356a, and this new user 124c exceeds the predefined threshold, the edgepoint 350 activates the appshot 220b to initiate a second instance of the application 356b. Thus, this demonstrates the ability of the present invention to provide capacity on the run or on-demand, and provide an optimal response time for the applications 356a-f (paragraph 0074)]".

32. Further references of interest are cited on Form PTO-892, which is an attachment to this action.

Art Unit: 2142

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai V. Nguyen
Examiner
Art Unit 2142



THONG VU
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100